

Chapter 2: Engineering your system

This chapter describes how you can determine the number of fax ports required for your Meridian IVR Fax Response system based on the amount of traffic which your system encounters. This chapter is written for engineers who are setting up and maintaining the Meridian IVR Fax Response system.

Modem pools

There are three types of modem pools:

- same call pool (reserved for Same Call applications)
- callback (reserved for Callback applications)
- shared (reserved for both Same Call and Callback applications)

For both Same Call and Callback applications, Meridian IVR attempts to reserve a modem from the same pool as the application. If no modem of the same type as the application is found, Meridian IVR tries to obtain a modem from the shared pool.

Notes:

- 1 A Same Call application cannot obtain a modem from the callback modem pool.
- 2 A Callback application cannot obtain a modem from the same call modem pool.

Determining number of fax ports required

The number of fax ports required by your system depends upon the estimated traffic that you anticipate the system will meet.

You can determine traffic by analyzing the fax application and voice menu traffic. The following subsections contain general information to help you do this.

Fax Response traffic models

Fax Response traffic models have queuing and blocking. A pure queuing model is used for Callback fax. The application initiates a Callback request. The fax is queued up and sent out once it reaches the head of the queue and a fax modem becomes free.

The Same Call model is more complex. An application that wants to use Same Call fax has to reserve a modem first. We recommend that you reserve the modem as close as possible to the time when the application has to use it. If a reserved modem remains idle for more than three minutes, it is freed up by the system. The application can also specify a time that it is willing to wait to reserve a modem.

The Same Call model thus becomes

- the blocking model if that time is set to zero
- the queuing with a time-out model if the time is set to nonzero
The application dequeues if the time in queue reaches a threshold.

Target Fax Grade of Service

The factors affecting the Grade of Service (GOS) are

- 1 the number of faxes requested in a busy hour
- 2 the average number of pages and their resolution
- 3 the average rendering time per page
- 4 the number of fax ports available

Fax rendering and sending are one operation to a Meridian IVR application. Therefore, factors 2 and 3 determine how long a fax port is held. Together with factor 1, they determine the fax traffic intensity.

The GOS is important in a Same Call situation because the fax operation takes place on the same Meridian IVR call. The GOS is the probability that a fax modem does not become available in a certain time (which could be 0).

The GOS for Callback fax is a measure of the probability that a fax sitting in the queue waiting to go out exceeds a certain time. This is important when a Meridian IVR application promises to send a fax within a certain time.

Another factor which can affect Callback fax is the probability that the remote machine is busy. If the fax is being sent with a retry option, it is queued up again. For the purposes of this document, this factor is ignored.

Fax on Demand (Callback delivery)

The Fax Application traffic must be estimated and channel requirements determined for the number of faxes requested in the busy hour. This is done by

- estimating the average session length for each fax application defined
- estimating the expected maximum number of busy hour calls to that application

The traffic from a Callback fax delivery should include the duration of the call to receive the request and the duration of the call that delivers the faxes. The call receiving the request consists of the following components:

- time to listen to voice prompts (15 seconds)
- time to select options (10 seconds for each option selected)
- time to enter callback number and extension (30 seconds)

The session time for each fax delivery can be estimated as follows:

- a 10-second time to set up the call
- a 14-second time to answer the call
- a 12-second time to establish protocol
- 40 seconds per page in normal resolution, and 80 seconds per page in fine resolution
- a 10-second time to complete fax delivery

This assumes that the fax is delivered on the first attempt. Additional time should be added if this is not the normal case.

Fax on Demand (Same Call delivery)

The Voice Menu traffic must be estimated and channel requirements determined for the number of faxes requested in the busy hour. This is done by estimating the average session length for each menu defined, the number of pages in the fax to be delivered, and the expected maximum number of busy hour calls to that menu.

The traffic from a Same Call fax delivery call should include the following components:

- time to listen to the greeting prompt
- time to listen to voice menus and select as many faxes as required
- time to receive Same Call faxing instructions
- time to transmit the faxes selected
 - a 12-second time to establish protocol
 - 40 seconds per page in normal resolution, and 80 seconds per page in fine resolution
 - a 10-second time to complete fax delivery

Tables have been generated for fax session lengths of 234 seconds (3.9 minutes). The tables indicate the traffic which can be handled by a given number of Meridian IVR and fax channels. Refer to the *Meridian IVR Planning and Engineering Guide* (NTP 555-9001-200) for more information.

Fax storage requirements

Fax storage limit

All fax data is stored under a single directory hierarchy, so you can use standard UNIX utilities (du) to determine when fax storage has been exceeded. The system does not receive and schedule to send any more faxes when the file system threshold is exceeded, nor will the use of the CFAX cell be permitted.

Hard disk storage

At 60 Kbytes per fax page, you need about 600 Mbytes of disk space for 10 000 pages of fax data, which is the amount of disk space typically available when a Meridian IVR application is first installed.

Second hard disk

You can use the second disk for storing fax data when there is either so many fax pages to store that they would not fit on the first drive, or because the available space on the first drive is being used for other purposes such as databases.

The only Meridian IVR component that can use the second hard disk is the Fax Response option. You can use the space available on the drive for your own purposes.

The second disk drive is mounted as “/sdisk”.

Fax support

Remote maintenance and diagnostics are available with your Meridian IVR Fax Response system. Support is accessible via the external modem using a character-based interface. All features of Meridian IVR Fax Response can be accessed with the character-based interface excluding the graphical Fax View/Edit windows.

Access and modem dial-up, which are available with your Meridian IVR Fax Response system, support Fax features. The administrative functions allow you to start up or shut down Meridian IVR Fax Response, configure ports, enable and disable modems, and view the log files maintained by the fax system.